

**COMMUNITY AFFAIRS**

**DIVISION OF CODES AND STANDARDS**

**Carnival-Amusement Rides**

**Definition of Super Ride, Update of Standards, Professional Engineer Equivalent,  
Operating on Last Year's Permit, and Accident/Incident Reporting**

**Proposed Amendments: N.J.A.C. 5:14A- 1.2, 1.3, 2.4, 2.5, 2.6, 2.7, 2.10, 2.11, 2.14, 2.15,  
4.13, 5.5, 7.1, 7.7, 7.8, 9.11, 10.7, 10.8, 13.3, 13.8, 13.9, 14.5**

Authorized By: Charles A. Richman, Commissioner, Department of Community  
Affairs.

Authority: N.J.S.A. 5:3-36.

Calendar Reference: See Summary below for explanation of exception to calendar  
requirement.

Proposal Number: PRN 2017-

Submit written comments by \_\_\_\_\_ to:

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**CHARLES A. RICHMAN**  
**Commissioner**

The agency proposal follows:

**Summary:**

Amendments are proposed to update the editions of standards throughout the rules. Outdated standards pose problems for manufacturers of amusement rides. Ride manufacturers market their products globally and rules that would require them to manufacture to an individual jurisdiction's requirements are not cost effective for them. In addition, using the latest standards reflects the most current industry practice for the safety of amusement rides.

Standards that are not referenced directly in the rules and have not been used by the Department as part of its enforcement of the regulations are proposed for deletion. Other standards which are applicable to the design of amusement rides and are referenced in ASTM F2291 are also deleted, since the reference in ASTM F2291 is sufficient. The proposed amendments eliminate the edition dates in all places other than where the standard is initially adopted in N.J.A.C. 5:14A-1.3. (The sole exception to this rule is N.J.A.C. 5:14A-7.2 which contains the reference to the standard, the year, and the modifications to the standard made as part of New Jersey's adoption.) These revisions would eliminate cases of conflicting editions of the standards being referenced in the rules.

The provisions for operating on the prior year's permit are proposed for amendment. There are conflicting provisions in sections 5:14A-2.10 and 2.11. The provisions in 2.10 allow owners to operate on the previous year's permit where a permit has been applied for, but the inspection cannot be performed in a timely manner. Section 2.11 states that an owner cannot operate a ride without an annual inspection. The proposed amendment would allow owners to

operate on the previous year's permit except where there are safety concerns about the ride. In those cases, the Department would be required to notify the owner in writing that they are not permitted to operate on last year's permit.

The provisions in the regulations that refer to a New Jersey Professional Engineer or a Professional Engineer in general are proposed for amendment. The design and manufacture of amusement rides is performed in numerous countries throughout the world. It is generally understood that the person responsible for the design must be qualified to practice within the jurisdiction where the design is being performed. Many countries do not use the term "Professional Engineer" to describe who is qualified to perform engineering services within the jurisdiction.

The provisions in the rules which describe when operators of amusement rides must report accidents and incidents are also proposed for amendment. The current rules require that, if there is an injury requiring first aid, then the owner must report the incident to the Department within 24 hours. The Department does not believe that cases where the injury only required first aid need to be reported in such a strict timeframe. The proposed amendment would allow the operator simply to record the incident, which record would be available for periodic inspection by the Department. The proposed amendments would also allow for reporting of accidents and incidents via email.

A section by section description of the proposed amendments follows.

At N.J.A.C. 5:14A-1.2, the definition of high speed is deleted. This definition is only used in the definition of super ride. Rather than list a separate definition, the value of high speed has been incorporated into the definition of super ride.

At N.J.A.C. 5:14A-1.2, the definition of super ride is amended to incorporate the value of high speed into the definition, to add the use of a class five restraint as a criterion for a super ride and to list the acceleration value that defines a super ride rather than refer to the need for an accelerometer test.

At N.J.A.C. 5:14A-1.3(a)1, a proposed amendment is made to delete the adoption of ACI standards because they are not referenced directly in the rules. Applicable ACI standards are referenced in the version of ASTM F2291 adopted at N.J.A.C. 5:14A-7.2. Also at N.J.A.C. 5:14A-1.3(a)1, the reference to ANSI B11.TR3 is deleted. The standard is referenced in ASTM F2291, and is not referenced anywhere else in the rules, therefore the reference in N.J.A.C. 5:14A-1.3 is not needed.

At N.J.A.C. 5:14A-1.3(a)2, a proposed amendment is made to delete the adoption of AISC standards because they are not referenced directly in the rules. Applicable AISC standards are referenced in the adopted version of ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)3, a proposed amendment is made to update the address for the American National Standards Institute. A proposed amendment is made to update the version of ANSI B77.1 to the 2011 version. A proposed amendment is made to delete the adoption of ANSI/ASME B15.1 and B93.114M since they are not directly referenced in the rules.

At N.J.A.C. 5:14A-1.3(a)4, a proposed amendment is made to delete the adoption of American Society of Civil Engineer Standards since these standards are not referenced directly in the rules. Applicable ASCE standards are referenced in the adoption of ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)5, a proposed amendment is made to update those ASTM standards that are referenced in the rules to the latest edition, to eliminate those standards that are not directly referenced in the rules and to correct the titles of the standards where they have

changed. In addition, the section was changed so that the standards are listed in order of increasing number for ease of use. For example ASTM F1292, ASTM F1487, ASTM F1772, ASTM F1773, ASTM F1774 and ASTM F1775 were moved from N.J.A.C. 5:14A-1.3(a)5xxi-xxvi to N.J.A.C. 5:14A-1.3(a)5vii-xii. Proposed amendments are made to add the following standards: ASTM F2375, ASTM F2460, ASTM F2461, ASTM F2960 and ASTM F2974. These are newer standards that were recently developed by ASTM that are applicable to amusement rides.

At N.J.A.C. 5:14A- 1.3(a)6, proposed amendments are made to update to the latest versions of the American Welding Society standards.

At N.J.A.C. 5:14A-1.3(a)7, a proposed amendment is made to delete the adoption of the CDC growth charts. These charts are referenced in ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)8, a proposed amendment is made to delete the adoption of MIT's Dreyfuss Human Scales. These scales are referenced in ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)9, a proposed amendment is made to delete the adoption of the following European Committee for Standardization standards: EN 954-1, EN1050, EN61496, EN 1993-1-9, EN 60947-1 and EN280. EN 954-1 is referenced in ASTM F2291 adopted at N.J.A.C. 5:14A-7.2. The other standards are not referenced in ASTM F2291, and therefore, would no longer be applicable.

At N.J.A.C. 5:14A-1.3(a)10, a proposed amendment is made to reference the building subcode of the New Jersey Uniform Construction Code.

At N.J.A.C. 5:14A-1.3(a)11, 12 and 13 proposed amendments are made to delete the reference to standards published by the International Electrotechnical Commission, ISO and the American Forest and Paper Association respectively. The IEC standards are incorporated into

ASTM F2291 which is adopted at N.J.A.C. 5:14A-7.2. The ISO standard referenced in N.J.A.C. 5:14A-1.3, ISO 4414, is also incorporated in ASTM F2291. Finally, the National Design Standard, published by the American Forest and Paper Association is also referenced in the adopted version of ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)14, a proposed amendment is made to update the versions of various National Fire Protection Association standards to the current editions.

At N.J.A.C. 5:14A-1.3(a)15, a proposed amendment is made to delete the adoption of standards from the National Fluid Power Association. These standards are incorporated in ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)16, a proposed amendment is made to delete the adoption of Organisation Internatiale Pour L'Etude De L'Enduance Des Cables International. This standard is neither referenced in the rules nor in the ASTM F2291 standard. Therefore, the standards are proposed for deletion.

At N.J.A.C. 5:14A-1.3(a)17, a proposed amendment is made to delete the adoption of SAE standards. The standards are incorporated as referenced documents in ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)18, a proposed amendment is made to delete the adoption of Underwriters Laboratory Standards. The standards are incorporated by reference in the adoption of ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)19, a proposed amendment is made to delete the adoption of standards published by the American Society of Metals International. The standards are incorporated by reference in ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)20, a proposed amendment is made to delete the adoption of standards from the American Society of Mechanical Engineers. The standards are incorporated by reference in ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)21, a proposed amendment is made to delete the adoption of standards from the British Standards Institute. The standards are incorporated by reference in ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)22, a proposed amendment is made to delete the adoption of standards from the Duetches Institut fur Normung. The standards are not referenced in either the rules or ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)23, a proposed change is made to delete the adoption of the referenced book “Hollow Structural Section Connection and Trusses—A Design Guide,” The book is not referenced in either the regulations or ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)24, a proposed amendment is made to delete the adoption of the USDA-72 standard published by the US Department of Agriculture. The standard is referenced in ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)25, a proposed amendment is made to delete the adoption of the standard “NEMA 250 Enclosures for Electrical Equipment.” The standard is incorporated by reference in ASTM F2291.

At N.J.A.C. 5:14A-1.3(a)27, a proposed amendment is made to delete the adoption of the “Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint.” The standard is not referenced in the rules or the ASTM F2291 standard.

At N.J.A.C. 5:14A-2.4 through 2.7, proposed amendments are made to allow people who have qualifications equivalent to a New Jersey Professional Engineer to make submissions when

the design is performed out of state. Many carnival and amusement rides are designed in foreign countries. The term “professional engineer” is not used universally and many countries use other terminology to describe individuals with qualifications equivalent to a professional engineer under New Jersey licensing law.

Also at N.J.A.C. 5:14A-2.7, an amendment is made to delete the reference to a type certification or an amended type certification. This section of the rules is applicable to rides that have been approved using the individual approval process rather than the type certification process. Therefore, the existing language is incorrect, and a correction is made.

At N.J.A.C. 5:14A-2.10, a proposed amendment is made to the title of the section to reflect more accurately the contents of the section. In addition, the reference to ASTM F846 is deleted. ASTM F846 is no longer updated by ASTM and the contents of the standard were moved to ASTM F1193. Therefore, the proposed amendment substitutes ASTM F1193 in its place.

Also at N.J.A.C. 5:14A-2.10, a proposed amendment is made that would restrict an operator from operating on last year’s permit. The intent of the provision is to allow operators to open their rides when the Department is unable to provide a timely inspection. There are cases, however, where operating without an inspection should not be allowed. Where the ride may have been damaged or where there is a manufacturer mandated repair or alteration to the ride, the Department should have the ability to deny the operator the ability to operate on last year’s permit. Such a denial would be in writing under the proposed amendment and would be appealable.



At N.J.A.C. 5:14A-2.11, a proposed amendment is made to cross reference the requirements in N.J.A.C. 5:14A-2.10 so it is clear that, in some cases, the ride can be operated without an annual inspection.

At N.J.A.C. 5:14A-2.14, a proposed amendment is made to delete references to ASTM F770 and ASTM F853, since F853 is no longer being maintained by ASTM and the applicable content has been deleted from F770. The requirements previously contained in those standards have been moved to ASTM F1193. Therefore, the proposed amendment substitutes ASTM F1193 in their place. An amendment is also made to eliminate the reference to the year of ASTM F1193 used. The convention is to include the year of the standard only in N.J.A.C. 5:14A-1.3 for ease of updating the standards and to lessen the possibility of inconsistent editions referenced in the standards. (The sole exception is N.J.A.C. 5:14A-7.2, as discussed above.)

At N.J.A.C. 5:14A-2.15, a proposed amendment is made to eliminate the reference to ASTM F846 since this standard is no longer maintained by ASTM. The contents of ASTM F846 are now found in ASTM F1193. Therefore, the proposed amendment substitutes ASTM F1193.

At N.J.A.C. 5:14A-4.13, a proposed amendment is made to change the requirements for reporting incidents that require only first aid. Under the current rule, such cases are to be reported to the Department within 24 hours. The proposed amendment requires that owners record such incidents, but would not require them to notify the Department within 24 hours. Proposed amendments are also made to this section to allow notification via email in addition to mail or facsimile. Finally, there is a proposed amendment to correct the mailing address to which accident/incident reports must be sent.

At N.J.A.C. 5:14A-5.5, a proposed amendment is made to eliminate the year of ASTM F1193 that is referenced. The convention is to list the year of the standard that is adopted only in

N.J.A.C. 5:14A-1.3 for ease of updating standards and to lessen the chance of referring to different editions of the same standard in the rules.

At N.J.A.C. 5:14A-7.1, a proposed change is made to eliminate the term “tramways” and substitute “ropeways” so that the terminology in the rules is consistent with the terminology in the referenced standard. In addition, a proposed amendment is made to eliminate the year of the standard referenced (B77.1.) By eliminating the year of the standard used in the body of the rules, updating standards will be easier and the chance of referencing differing or conflicting editions of the standards will be reduced. A proposed amendment is also made to the title of the ANSI B77.1 standard to match the title of the proposed edition of the standard.

At N.J.A.C. 5:14A-7.7, a proposed amendment is made to substitute ASTM F698 with ASTM F1193. ASTM is no longer updating the ASTM F698 standard and those requirements have been moved to ASTM F1193.

At N.J.A.C. 5:14A-7.8, a proposed amendment is made to delete the reference to ASTM F846 and to substitute ASTM F1193 in its place. The ASTM F846 standard is no longer updated by ASTM and those requirements have been moved to ASTM F1193. Therefore, the proposed amendment substitutes the ASTM F1193 standard.

At N.J.A.C. 5:14A-9.11, 10.7, 10.8 and 13.3, a proposed amendment is made to allow people who have qualifications equivalent to a New Jersey Professional engineer to make submissions when the design is performed out of state. As stated above, many carnival and amusement rides are designed in foreign countries. The term “professional engineer” is not used universally and many countries use other terminology to describe a person with qualifications that are equivalent to a professional engineer under New Jersey licensing law.

At N.J.A.C. 5:14A-13.8, a proposed amendment is made to delete the reference to the International Building Code and substitute a reference to the building subcode of the Uniform Construction Code. The building subcode of the Uniform Construction Code is the International Building Code with amendments. The proposed amendment would help ensure consistency between the regulations.

At N.J.A.C. 5:14A-13.9, a proposed amendment is made to correct a cross reference.

At N.J.A.C. 5:14A-14.5, a proposed amendment is made to delete the year of the EN 2572 standard referenced. The year referenced can be found at N.J.A.C. 5:14A-1.3. The proposed amendment will make updating the standards easier and will reduce the likelihood of referencing different editions of the same standard in the regulations.

As the Department has provided a 60-day comment period on this notice of proposal, this notice is excepted from rulemaking calendar requirements pursuant to N.J.A.C. 1:30-3.3(a)5.

### **Social Impact**

The proposed amendments would ensure that New Jersey is using current standards which reflect the state of the art in ride safety. The changes will simplify the process of updating standards in the future allowing New Jersey to have regulations that match the current industry standards and practices. The changes will help to avoid future conflicts in the rules making the rules easier for the public and industry to use.

The proposed amendments regarding the qualifications of those submitting plans and calculations will have no social impact. The change simply reflects the fact that the term “professional engineer” is not used universally.

The proposed amendments that allow owners to operate on the previous year's permit only where there are no potential safety concerns will help ensure that public safety is maintained while still providing ride operators the ability to operate should the Department not be able to perform an annual inspection prior to the date of first use.

The Department anticipates that the proposed amendment that would eliminate the need for owners to report cases where there was an injury on a ride that required only first aid will not result in any adverse effects on public safety. There are numerous injuries requiring first aid which do not reflect any problem with the ride or its operation. The Department does not have the resources to cull through potentially thousands of first aid reports to try to identify trends that may or may not be attributable to the ride or how it is being operated. Having this information on site while the inspector is performing his inspection is a much more efficient and appropriate way of recording the information.

### **Economic Impact**

The proposed amendments should have a positive economic impact by ensuring that New Jersey's requirements conform to the current consensus standards for the design, operation and maintenance of amusement rides. Manufacturers typically design their rides using the latest available standards. Using outdated standards can, in some cases, cause conflicts. In those cases, manufacturers could potentially be required to apply for variances or make modifications to their rides to comply with New Jersey's regulations. Using current standards eliminates these conflicts, reducing time for approvals, avoiding modifications to rides and eliminating the need for variances.

The proposed amendments that recognize qualifications equivalent to a New Jersey Professional Engineer for designs performed out of state will not have an economic impact since

they reflect the current practice of the Department to recognize individuals whose qualifications are equivalent to a New Jersey Professional Engineer in qualifications, but not in name.

Preventing owners from operating on last year's permit would have an adverse economic impact on owners. The Department does not anticipate that this will be a common occurrence. In addition, regardless of the economic impact, the restriction is important for public safety.

The proposed amendments, which would change the accident/incident reporting requirements should be of economic benefit to ride owners by reducing the amount of time and effort required to report.

#### **Federal Standards Statement**

A Federal standards analysis is not required because the proposed amendments are not being proposed for amendment under the authority of, or in order to implement, comply with, or participate in, any program established under Federal law or under a State statute that incorporates or refers to Federal law, standards, or requirements.

#### **Jobs Impact**

The Department does not anticipate that the proposed amendments would result in either the creation or loss of jobs.

#### **Agriculture Industry Impact**

It is not anticipated that the proposed amendments will have any impact on the agriculture industry in New Jersey.

#### **Regulatory Flexibility Analysis**

The proposed amendments would apply to owners of amusement rides, many of which would be considered small businesses as defined in the New Jersey Regulatory Flexibility Act, N.J.S.A. 52:24B-16 et seq. The rules update the standards referenced in the regulations which in large measure apply to the design of new amusement rides. ASTM F1193, which is being updated and in some cases used as a replacement for standards that are no longer being updated by ASTM, does contain provisions that apply to the operation and maintenance of existing rides. However, the provisions of the standard duplicate the provisions in the standards that it replaces and will not result in additional recordkeeping or financial burden on businesses of any size.

The proposed amendments concerning individuals with qualifications that are equivalent to New Jersey Professional Engineer for designs performed outside the state will not have an adverse effect on businesses, regardless of size, and may benefit businesses inasmuch as it expands the pool of individuals whose designs will be accepted.

The proposed amendments to the provisions that allow ride owners to operate on last year's permit will not require any additional recordkeeping or professional services. In some cases these provisions might impact businesses but these cases are limited to cases where there is a legitimate public safety concern and cannot be adjusted based on business size.

The proposed amendments to the accident/incident reporting requirements will reduce paperwork and reporting requirements for business of all sizes.

### **Smart Growth Development Impact**

Because the proposed amendments only update the affect the design and operation of carnival and amusement rides, there is an extreme unlikelihood that it would evoke a change in housing production within Planning Areas 1 and 2, or within designated centers, under the State Development and Redevelopment Plan.

## Housing Affordability Impact

Because the proposed amendments only update the standard for the design of carnival and amusement rides, there is an extreme unlikelihood that it would have any impact on the production of affordable housing.

**Full text** of the proposal follows (additions indicated in boldface **thus**; deletions indicated in brackets [thus]):

### 5:14A-1.2 Definitions

[“High Speed” means greater than 37.5 mph, 55 ft/sec or 16.8 m/sec.]

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“Super ride” means a ride designed to propel riders at high speed (**speed greater than 37.5 mph**), **required to have a class-5 restraint by ASTM F 2291** or **found to have** accelerations in [any direction which requires an accelerometer test according to the provisions of N.J.A.C. 5:14A-7.5] **excess of 75% of the limits specified in ASTM F 2291, as amended by N.J.A.C.**

### **5:14A-7.2.**

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### 5:14A-1.3 Standards adopted

(a) The standards listed below are adopted and incorporated as part of this chapter. In the event that any provision in any of the following standards conflicts with a provision of this chapter, this chapter shall govern.

[1. The following standards are adopted and are available from the American Concrete Institute, P.O. Box 19150, Detroit, Michigan 48219:

- i. ACI 301-99, “Specifications for Structural Concrete for Buildings”;
- ii. ACI 318-02, “Building Code Requirements for Reinforced Concrete”

2. The following standards are adopted and are available from the American Institute of Steel Construction, 400 North Michigan Avenue, Chicago, Illinois 60611:

- i. AISC , “Manual of Steel Construction ASD, 9<sup>th</sup> Edition”;
- ii. AISC 316 (1989) Manual on Steel Construction, Allowable Stress Design (ASD); and
- ii. AISC M015 (1986) Manual on Steel Construction, Load and Resistance Factor Design (LRFD);

3.] **1.** The following standards are adopted and are available from the American National Standards Institute, [11 West 42<sup>nd</sup> Street] **25 West 43<sup>rd</sup> Street**, New York, NY 10036:

- i. [ANSI B11.TR3 (2000), “Technical Report on Risk Assessment and Reduction”;
- ii.] ANSI B77.1-[1999] **2011**, “American National Standard for Passenger Ropeways – Aerial Tramways, Aerial Lifts, Tows and Conveyors – Safety Requirements”;
- [iii. ANSI/ASME B15.1, “Safety Standards for Mechanical Power Transmission and Conveyors and Related Equipment”;
- iv. ANSI B93.114M (1987), “Pneumatic Fluid Power System Standard for Industrial Machinery”; and



v.] **ii.** ANSI/IAF-9 (2005), “American National Standard for Aquatic Recreation Facilities.”

[4. The following standards are adopted and are available from the American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, Virginia 20191-4400:

- i. ASCE 7 (1998), Minimum Design Loads for Buildings and Other Structures; and
- ii. ASCE 16 (1995), Standard for Load and Resistance Factor Design (LRFD) for Engineered Wood Construction;

5.] **2.** The following standards are adopted and are available from the ASTM International, 100 Barr Harbor Drive, P.O. Box C700, W. Conshohocken, PA 19428-2959:

i. ASTM E 84-**16**, “Test Method for Surface Burning Characteristics of Building Materials”;

[ii. ASTM F 698-94, “Specification for Physical Information to be Provided for Amusement Rides and Devices”];

**ii. ASTM E 543-15, “Specification for Agencies Performing Nondestructive Testing”;**

iii. ASTM F 747-[97] **15**, “Terminology Relating to Amusement Rides and Devices”;

iv. ASTM F 770-[93] **15**, Practice for [Operating Procedures for] **Ownership, Operation, Maintenance, and Inspection of Amusement Rides and Devices”;**

[v. ASTM F 846-92, “Guide for Testing Performance of Amusement Rides and Devices”;

vi. ASTM F 853-04, “Practice for Maintenance Procedures for Amusement Rides and Devices”;

vii. ASTM F 893-04, “Guide for Inspection of Amusement Rides and Devices”;

viii.] **v. ASTM F 1159-[03a] 15b**, “Practice for Design [and Manufacture of Patron Directed, Artificial Climbing Walls, Dry Slide, Coin Operated and Purposeful Water Immersion Amusement Rides and Devices and Air Supported Structures] **of Amusement Rides and Devices that are Outside the Purview of Other F24 Design Standards**”;

[ix.] **vi. ASTM F 1193-[04] 16**, “Practice for **Quality, Manufacture, and Construction of Amusement Ride and Devices [Manufacturer Quality Assurance Program and Manufacturing Requirements]**”;

**vii. ASTM F 1292-13**, “**Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment**”;

**viii. ASTM F 1487-01**, “**Consumer Safety Performance Specification for Playground Equipment for Public Use**”;

**ix. ASTM F 1772-12**, “**Specification for Harnesses for Rescue, Safety, and Sport Activity**”;

**x. ASTM F 1773-97**, “**Standard Terminology Relating to Climbing and Mountaineering Equipment**”;

**xi. ASTM F 1774-13**, “**Standard Specifications for Climbing and Mountaineering Carabiners**”;

**xii. ASTM F 1775-97**, “**Standard Specification for Labeling of Climbing and Mountaineering Equipment**”;

[x.] **xiii. ASTM F 1918-[98] 12**, “**Standard Safety Performance Specification for Soft Contained Play Equipment**”;

xi. – xii. Renumber as xiv. – xv. (No change in text.)

[xiii.] **xvi.** ASTM F 2137-[01] **15a**, “Practice for Measuring the Dynamic Characteristics of Amusement Rides and Devices”;

[xiv.] ASTM F 1305-94, “Guide for Classification of Amusement Ride and Devices Related Injuries and Illnesses”;

xv. ASTM F 1950-99, “Specifications for Physical Information to be Transferred with Used Amusement Rides and Devices”;

xvi.] **xvii.** ASTM F 2291-[04] **14**, “Practice for Design of Amusement Rides and Devices”;

[xvii.] **xviii.** ASTM F 2374-[04] **10**, “Practice for Design, Manufacture, Operation, and Maintenance of Inflatable Amusement Devices”;

**xix.** ASTM F 2375-09, **Practice for Design, Manufacture, Installation and Testing of Climbing Nets and Netting/Mesh used in Amusement Rides , Devices, Play Areas and Attractions**”;

**xx.** ASTM F 2376-06, **“Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems”**;

**xxi.** ASTM F 2460-11, **“Practice for Special Requirements for Bumper Boats”**;

**xxii.** ASTM F 2461-09, **“Practice for Manufacture, Construction, Operation, and Maintenance of Aquatic Play Equipment”**;

**xxiii.** ASTM F 2960-15, **“Practice for Permanent Amusement Railway Ride Tracks and Related Devices”**; and

**xxiv.** ASTM F 2974-15, **“Guide for Auditing Amusement Rides and Devices”**;

[xviii.] MIL-STD-17 (2000), “The Composite Material Handbook”;

xix. Mil-STD-882C (1993), “System Safety Program Requirements”;

- xx. STP-1330, “Composite Materials: Fatigue and Fracture, 7<sup>th</sup> Volume”;
- xxi. ASTM F 1292-99, “Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment”;
- xxii. ASTM F 1772-99 “Standard Specification for Climbing Harnesses”;
- xxiii. ASTM F1773-97, “Standard Terminology Relating to Climbing and Mountaineering Equipment;”
- xxiv. ASTM F 1774-99, “Standard Specifications for Climbing and Mountaineering Carabiners”;
- xxv. ASTM F 1775-97, “Standard Specification for Labeling of Climbing and Mountaineering Equipment”;
- xxvi. ASTM F 1487-01, “Consumer Safety Performance Specification for Playground Equipment for Public Use”;
- xxvii. ASTM F 2376-06, “Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems”; and
- xxviii. ASTM F 1292-99, “Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment”];

[6.] **3.** The following standards are adopted and are available from the American Welding Society, 550 N.W. LeJeune Road, Miami, Florida 33126:

- i. ANSI/AWS D1.1/D1.1M [(2002)] **(2015)**, “Structural Welding Code – Steel”; and
- ii. ANSI/AWS D14.4 [(1997)] **(2012)** “Specification for Welded Joints in Machinery and Equipment”;

[7. CDC 95<sup>th</sup> Percentile is adopted and is available from the National Center for Health Statistics at <http://www.cdc.gov/growthcharts>;

8. The following standards are adopted and are available from the MIT Press, 5 Cambridge Center, Cambridge, MA 02142-1493:

i. Dreyfuss Human Scale 4/5/6;

ii. Dreyfuss Human Scale 7/8/9;

9.] **4.** The following standards are adopted and are available from the European Committee for Standardization, Central Secretariat, rue de Stassart 36, B-1050 Brussels, Belgium:

[i. EN 954-1 (1996), “Safety of Machinery – Safety-related parts of control systems – Part 1: General Principles for design”;

ii. EN 1050 (1996), “Safety of Machinery – Principles for Risk Assessment”;

iii. EN 61496, “Safety of Machinery – Electro-sensitive protection equipment”;

iv. EN 1993-1-9 (2001), “Eurocode 3 Design of Steel Structures. Part 1.9 Fatigue Strength of Steel Structures”;

v. EN 1993-1-9 (2001), “Eurocode 3 Design of Steel Structures. Part 6.9 Crane Support Structures – Fatigue Strength”;

vi. EN 60947-1 (1999), “Low Voltage Switchgear and Controlgear”;

vii. EN 280 (2001), “Mobile Elevating Work Platforms – Design Calculations, Stability Criteria, Construction, Safety, Examination and Test”;

viii. – xii. Recodify as i. – v. (No change in text.)

[10.] **5.** [IBC – 2000,] **IBC – NJ edition, the edition of the** “International Building Code” adopted as **the building subcode of the Uniform Construction Code (N.J.A.C. 5:23-3.14)** and available from the [Building Officials and Code Administrators International, Inc.]

**International Code Council, Inc.**, 4051 West Flossmoor Road, Country Club Hills, Illinois 60478-5795;

[11. The following standards are adopted and are available from the International Electrotechnical Commission 3, rue de Varembe, P.O. Box 131, CH – 1211 Geneva 20, Switzerland:

- i. IEC-61508-1 (1999), “Functional safety of electrical/electronic/programmable electronic safety-related systems”;
- ii. IEC-60204-1 (2000), “Safety of Machinery – Electrical Equipment of Machines – Part 1 General Requirements”;
- iii. IEC-61496-1 (1998), “Safety of Machinery – Electrosensitive Protective Equipment – General Requirements and Tests”;
- iv. IEC-61511, “Functional Safety: Safety Instrumented Systems for the Process Industry Sector”; and
- v. IEC-62061, “Safety of Machinery – Functional Safety – Electrical, Electronic, and Programmable Electronic Systems”;

12. ISO 4414 (1998), “Pneumatic Fluid power – General rules relating to systems,” is adopted and is available from the National Fluid Power Association, 3333 North Mayfair Road, Milwaukee, Wisconsin 53222-3219;

13. NDS-91, “National Design Specifications for Wood Construction,” is adopted and is available from the American Forest and Paper Association, 1250 Connecticut Avenue/Suite 200, Washington, DC 20036;]

[14.] **6.** The following standards are adopted and are available from the National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02269-9101:

- i. NFPA 10 [1998] **(2013)**, “Portable Fire Extinguishers”;
- ii. NFPA 70 [(2005)] **(2014)**, “National Electrical Code”;

- iii. NFPA 79 [(2007)] **(2015)**, “Electrical Standard for Industrial Machinery”;
- iv. NFPA 261 [1998] **(2013)**, “Standard Method of Testing for Determining Resistance of Mock Up Upholstered Furniture Material Assemblies to Ignition by Smoking Cigarettes”;
- v. NFPA 701 [1996] **(2015)**, “Methods of Fire Tests for Flame [Resistant] **Propagation of Textiles and Films**”;
- vi. NFPA 705 [1997] **(2013)**, “Recommended Practice for a Field Flame Test for Textiles and Films”; and
- vii. NFPA 101 [(2000)] **(2015)**, “Life Safety Code”;

[15. The following standards are adopted and are available from the National Fluid Power Association, 3333 North Mayfair Road, Milwaukee, Wisconsin 53222-3219:

- i. NFPA/T2.24.1R1-2000, “Hydraulic fluid power – Systems Standards for Stationary Industrial Machinery”;
- ii. NFPA/JIC T2.25.1M-1986, “Pneumatic fluid power – Systems Standard for Industrial Machinery”;

16. OIPEEC Standards, Organisation Internationale Pour L’Etude De L’Endurance Des Cables International, are adopted and are available from The University of Reading, Department of Engineering, P.O. Box 225, Reading RG6 6AY, UK;

17. The following standards are adopted and are available from the SAE World Headquarters, 400 Commonwealth Drive, Warrendale, PA 15096-0001:

- i. SAE J211 (1995), “Instrumentation for Impact Test – Part 1 – Electronic Instrumentation”;
- ii. SAE J833 (1989), “Human Physical Dimensions”; and
- iii. SAE HS 4000 (1999), “Fastener Standards”;

18. The following standards are adopted and are available from the Underwriters Laboratories, Inc., 333Pfungsten Road, Northbrook, Illinois 60062-2096.

- i. UL 508 (2000), “Industrial Control Equipment”; and
- ii. UL 508A (2000), “Industrial Control Panels”;

19. The following standards are adopted and are available from the American Society of Metals International, 9639 Kinsman Road, Materials Park, OH 44073-0002.

- i. ASM Atlas of Fatigue Curves (1986); and
- ii. ASM Handbook Volume 19: Fatigue and Fracture;

20. The following standards are adopted and are available from the American Society of Mechanical Engineers, ASME International Headquarters, Three Park Avenue, NY, NY 10016-5990.

- i. ASME B15.1-2000, “Safety Standard for Mechanical Power Transmission Apparatus”;
- and
- ii. ASME A17.1-2002, “Safety Code for Elevators and Escalators”;

21. The following standards are adopted and are available from the British Standards Institute, 389 Chiswick Road, London W4 4AL, UK.

- i. BS 5400-10 (1980), “Steel, Concrete, and Composite Bridges – Code of Practice for Fatigue”; and
- ii. BS 7608 (1993), “Code for Practice for Fatigue Design and of Steel Structures”;

22. “DIN 15018-1 Cranes; Steel Structures Verification and Analysis Data” is adopted and is available from the Beuth Verlag GmbH (DIN – DIN Deutsches Institut Fur Normung e.V.), Burggrafenstraße 6, 10787 Berlin, Germany.



23. “Hollow Structural Section Connection and Trusses – A Design Guide,” J.A. Parker and J.E. Henderson, is adopted and is available from Canadian Institute of Steel Construction;

24. “USDA-72 (U.S. Department of Agriculture) The Wood Handbook – Wood as an Engineering Material, Forest Service, Forest Products Laboratory,” is adopted and is available from Federal Documents;

25. “NEMA 250 (1997) Enclosures for Electrical Equipment”, is adopted and is available from National Electrical Manufacturers Association (NEMA),1300 N. 17<sup>th</sup> St., Suite 1847, Rosslyn, VA 22209; and]

Recodify 26. as 7. (No change in text.)

[27. The following standards are adopted and are available from the U.S. Government Printing Office (GPO), 732 N. Capital Street N.W., Washington, D.C. 20401:

i. 16 CFR Part 1303(1/04), “Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint.”]

#### 5:14A-2.4 Type certification

(a) (No change.)

(b) An application for a type certification for a new ride shall contain the following:

1. – 2. (No change.)

3. One complete set of ride design calculations signed and sealed by a [licensed] professional engineer **licensed to practice in the State of New Jersey or, when the design is performed out of State, another qualified individual with substantially equivalent credentials.** These ride design calculations shall include:

i. - iv. (No change.)

4. - 9. (No change.)

(c) – (e) (No change.)

#### 5:14A-2.5 Individual approval

(a) (No change.)

(b) An application for an individual approval for a new ride shall contain the following:

1. – 2. (No change.)

3. One complete set of ride design calculations signed and sealed by a [licensed] professional engineer **licensed to practice in the State of New Jersey or, when the design is performed out of State, another qualified individual with substantially equivalent credentials.** These ride design calculations shall include:

i. – iv. (No change.)

(c) – (h) (No change.)

#### 5:14A-2.6 Amended type certification

(a) (No change.)

(b) The application for an amended type certification shall include the following:

1. – 2. (No change.)

3. One full set of drawings, designs, specifications, and other construction documents, signed and sealed by a [licensed] professional engineer **licensed to practice in the State of New Jersey or, when the design is performed out of State, another qualified individual with substantially equivalent credentials,** that demonstrate compliance with the design requirements

of N.J.A.C. 5:14A-7, that comply with N.J.A.C. 5:14A-2.12, and are necessary for full and complete review of the major modification;

4. – 5. (No change.)

(c) – (d) (No change.)

#### 5:14A-2.7 Supplemental modification certification

(a) (No change.)

(b) The application for a supplemental modification certification shall include the following:

1. – 2. (No change.)

3. One full set of drawings, designs, specifications, and other construction documents, signed and sealed by a [licensed] professional engineer **licensed to practice in the State of New Jersey or, when the design is performed out of State, another qualified individual with substantially equivalent credentials**, that demonstrate compliance with the design requirements of N.J.A.C. 5:14A-7, that comply with N.J.A.C. 5:14A-2.12, and are necessary for full and complete review of the major modification;

4. – 5. (No change.)

(c) Within 30 calendar days or receipt of a complete application, the Department shall send to the applicant either [an amended type certification] **a supplemental modification certification**, temporary [amended type certification] **supplemental modification certification** or a denial of the application.

1. – 2. (No change.)

(d) (No change.)

5:14A-2.10 Annual permit[s] and [issuance of] serial number plate[s]

(a) An annual permit shall be issued for the current calendar year or for a period of one year from the expiration of the last permit. No amusement ride shall be operated without a current, valid annual permit, except when:

1. The ride [is covered by] **has** a valid annual permit from the prior year, the owner of the ride has applied for an annual permit in the current year, there are no outstanding orders against the ride, [there is no outstanding documentation or fee] **all required documentation and fees have been received, reviewed, and accepted**, and an **annual inspection by the Department has been requested for a date prior to operation, but the Department cannot accommodate that request and a later date** is scheduled. **The Department may refuse to allow an owner to operate on the prior year permit where there may be conditions that affect the safety of the ride such as outstanding manufacturer's bulletins, known or suspected damage to the ride, or an accident or incident involving a ride of the same type. In such cases, it shall be the Department's responsibility to notify the owner in writing that they may not operate on the prior year permit; or**

2. An application for an annual permit for the ride has been submitted in the current year, there are no outstanding orders against the ride, all required documentation and fees have been received, reviewed, and accepted, and the ride has passed **an annual inspection by the Department**, but the operator has not received the permit.

(b) - (e) (No change.)

(f) For rides without a New Jersey serial number:

1. An application for an annual permit shall include the following information and shall be submitted on a form provided by the Department:

i. – iii. (No change.)

iv. A copy of certification that the manufacturer has tested the ride in accordance with ASTM [F 846] **F 1193** and determined that the ride is satisfactory. (Certification of testing from the ride owner shall be acceptable for a used ride, when the ride manufacturer does not provide a certificate.);

v. – vii. (No change.)

2. – 3. (No change.)

(g) – (l) (No change.)

#### 5:14A-2.11 Inspections

(a) – (b) No change

(c) Annual inspection: **Except as provided for in N.J.A.C. 5:14A – 2.10(a)1**, an annual inspection shall be performed before a ride operates each year. The annual inspection shall include, but not be limited to:

1. – 6. No change

(d) – (g) No change

#### 5:14A-2.14 Manuals

(a) For each ride for which type certification/amended type certification, individual approval/supplemental modification certification, or an annual permit application is submitted the applicant shall provide maintenance requirements, maintenance schedules, inspection requirements, and inspection schedules, each in a checklist format, as follows:

1. Operation Manual as per ASTM [F 770-93 (Reapproved 2000)] **F 1193**;

2. Maintenance Manual as per ASTM [F 853-98] **F 1193**;

3. (No change.)

4. A quality assurance manual as per ASTM F 1193[-97].

(b) – (d) (No change.)

#### 5:14A-2.15 Non-destructive testing requirements and reports

(a) An application for a type certification/amended type certification or individual approval/supplemental modification certification shall include a copy of the non-destructive testing plan and operating instructions provided by the manufacturer. The non-destructive testing plan shall identify the components to be tested and the frequency for testing. The nondestructive testing requirements and schedules shall be in a checklist format and shall contain, at a minimum, the information required in N.J.A.C. 5:14A-9.24. All documentation submitted shall comply with ASTM [F 846-92 (Reapproved 1998)] **F 1193**.

1. – 2. (No change.)

(b) – (c) (No change.)

#### 5:14A-4.13 Accident, incident or mechanical breakdown reporting

(a) Shut down and report: When any incident occurs involving a death or serious injury, ejection from the ride or failure of a critical structural or mechanical component, regardless of cause, the owner shall:

1. – 3. (No change.)

4. Prepare a written incident report and send it to the Department by telefacsimile at the telefacsimile number or **electronic mail at the email address** provided for this purpose within 24 hours of the incident.

i. (No change.)

(b) Report within 24 hours: When any incident occurs involving [a ride-related injury requiring first aid, or] any mechanical malfunction, or an emergency evacuation of the ride, the owner shall:

1. Report the incident to the Department within 24 hours of the incident by telephone, [or by] telefacsimile, **or electronic mail** at the numbers/**email address** provided for this purpose;

2. Prepare a written incident report and send it to the Department by facsimile at a number provided for this purpose within five days of the incident or by mail at PO Box [808] **816**, Trenton, NJ 08625 postmarked within five days of the incident **or by electronic mail at an address provided for this purpose**. The written incident report shall be on a form designed by the Department and shall include a description of any planned corrective action and a time frame for completion; and

3. – 4. (No change.)

(c) (No change.)

#### 5:14A-5.5 Quality assurance manual

For rides being issued a type certification or individual approval, the manufacturer shall provide a quality assurance manual that is in compliance with ASTM F 1193[-97].

#### 5:14A-7.1 Title; scope; intent

(a) – (c) (No change.)

(d) The scope of this subchapter shall not include:

1. – 2. (No change.)

3. Soft-play equipment, subject to these rules because of its location with other amusement rides, shall meet ASTM F 1918[-98], Standard Safety Performance Specification for Soft Contained Play Equipment, and all applicable rules.

4. Passenger [tramways] **ropeways**, which shall comply with ANSI B77.1[-1999], [Aerial Passenger Tramways] **American National Standard for Passenger Ropeways – Aerial Tramways, Aerial Lifts, Tows, and Conveyors – Safety Requirements**”[, with the following amendments:

- i. Section 1.1 through 1.3 and section 8 shall be deleted.
- ii. Any section or provision relating to administration or to reporting shall be deleted].

(e) – (f) (No change.)

5:14A-7.7 Identification, data plates and manufacturer’s information

(a) Amusement rides and devices shall be identified and have an Information Plate as required by ASTM [F 698] **F 1193**.

(b) (No change.)

5:14A-7.8 Quality assurance program

(a) The quality assurance program for manufacture, assembly, erection, modification, or reconditioning, shall contain, at a minimum, all of the following:



1. – 6. (No change.)

7. Testing shall be performed, in accordance with ASTM [F 846-92] **F 1193**, on the ride, and subassemblies and parts, if necessary; and

8. (No change.)

#### 5:14A-9.11 Maintenance and repair

(a) (No change.)

(b) Rides shall be operated and maintained in compliance with the manufacturer's specifications for fatigue loading. No holes shall be drilled into tubing that might compromise the integrity of the structure without written permission from the manufacturer. In the event the manufacturer does not exist, a professional engineer licensed to practice in the State of New Jersey **or, when the design is performed out of State, another qualified individual with substantially equivalent credentials** shall review and approve, in writing, the actions and reasons for said actions. The manufacturer or the professional engineer shall show, from materials standards or from the maintenance manual, that the proposed hole sizes and locations will not compromise the integrity of the structure.

(c) No structural shaft may be cross-drilled or welded without the written permission of the manufacturer. In the event the manufacturer does not exist, a professional engineer licensed to practice in the State of New Jersey **or, when the design is performed out of State, another qualified individual with substantially equivalent credentials** shall review and approve, in writing, the actions and reasons for said actions.

(d) – (f) (No change.)

(g) Any and all work performed by a machine shop, repair facility, or a third party of any kind for any reason shall be done to the documented specifications of the manufacturer or of a professional engineer licensed to practice in the State of New Jersey **or, when the design is performed out of State, another qualified individual with substantially equivalent credentials**, as appropriate, based on the approved written repair plan.

(h) – (j) (No change.)

#### 5:14A-10.7 Engineering review

(a) Before an engineering review can be conducted, the following shall be submitted to the Department:

1. One complete set of ride drawings signed and sealed by a [licensed] professional engineer **licensed to practice in the State of New Jersey or, when the design is performed out of State, another qualified individual with substantially equivalent credentials**;

2. One complete set of ride design calculations signed and sealed by a [licensed] professional engineer **licensed to practice in the State of New Jersey or, when the design is performed out of State, another qualified individual with substantially equivalent credentials**, including local environmental conditions;

3. -4. (No change.)

#### 5:14A-10.8 Engineering certification

(a) (No change.)

(b) An application for an engineering certification for a bungee jumping operation shall include two copies of the following documents, signed and sealed by a [licensed] professional engineer

**licensed to practice in the State of New Jersey or, when the design is performed out of State, another qualified individual with substantially equivalent credentials:**

1. -8. (No change.)

9. A definitive statement by a professional engineer **licensed to practice in the State of New Jersey or, when the design is performed out of State, another qualified individual with substantially equivalent credentials** that the bungee jumping operation is safe and acceptable to operate with the equipment identified in the submittal.

5:14A-13.3 Type certification

(a) – (b) (No change.)

(c) Manufacturers shall submit the following documentation for each inflatable ride:

1. – 4. (No change.)

5. Design calculations per inflatable ride, or class of ride if the wind load areas are comparable, indicating the number of anchorage points and anchor size based upon live and wind loads. The calculations shall be signed and sealed by a [licensed] professional engineer **licensed to practice in the State of New Jersey or, when the design is performed out of State, another qualified individual with substantially equivalent credentials;** and

6. (No change.)

5:14A-13.8 Ride loading and unloading

(a) (No change.)

(b) For completely enclosed, dark structures:

1. Exits shall be marked by readily visible signs in compliance with [IBC 2000,] Section [1003.2.10] **1013 of the building subcode, Uniform Construction Code of New Jersey (N.J.A.C. 5:23)**, in all cases where it is not immediately visible to riders:

2. – 4. (No change.)

(c) (No change.)

#### 5:14A-13.9 Materials

(a) (No change.)

(b) Foam padding shall meet the requirements of ASTM F 1918, section [11.5.2] **12.5.2**.

#### 5:14A-14.5 Design and construction

(a) – (e) (No change.)

(f) Design of an artificial climbing wall shall be in accordance with EN 12572[:1999], Artificial climbing structures – protection points, stability requirements, and test methods.

(g) – (k) (No change.)